

distinguish them from each other as shown in Fig. 64D and Fig. 67B. That is, as shown in Fig. 64D and Fig. 67B, the insulating resin layers 6 and 306b can be provided with a fourth resin layer 6v constructed of the insulating resin 306m that is positioned in the portion brought in contact with the IC chip 1 and the board 4 and mixed with the inorganic filler 6f and a fifth resin layer 6w constructed of the insulating resin 306m that is positioned in the middle portion between the IC chip 1 and the board 4 and mixed with a smaller amount of inorganic filler than the fourth resin layer 6v or with no inorganic filler.

With this arrangement, the middle portion 702 located between the IC chip 1 and the board 4 or the fifth resin layer 6w is mixed with a smaller amount of inorganic filler than that of the portion 703 or the fourth resin layer 6v brought in contact with the IC chip 1 and the board 4 or with no inorganic filler, and therefore, the elastic modulus is reduced, allowing the stress alleviation effect to be produced. By selectively employing an insulating resin of high adhesion to the IC chip 1 and the board 4 as the insulating resin of the portion 703 or the fourth resin layer 6v brought in contact with the IC chip 1 and the board 4, it is allowed to select the loadings or material of the inorganic filler 6f so that the portion 703 brought in contact with the IC chip 1 or the fourth resin

layer 6v located in the vicinity of the IC chip 1 comes to have a coefficient of linear expansion closer to that of the IC chip 1 and select the loadings or material of the inorganic filler 6f so that the portion 703 brought in contact with the board 4 or the fourth resin layer 6v located in the vicinity of the board 4 comes to have a coefficient of linear expansion closer to that of the board 4. As a result, the coefficient of linear expansion of the portion 703 brought in contact with the IC chip 1 or the fourth resin layer 6v located in the vicinity of the IC chip 1 comes close to that of the IC chip 1. Therefore, both the members are hard to separate, and since the coefficient of linear expansion of the portion 703 brought in contact with the board 4 or the fourth resin layer 6v located in the vicinity of the board 4 comes close to that of the board 4, both the members are hard to separate.

Furthermore, as indicated by the solid lines in Fig. 68A and 68B, the insulating resin layers 6 and 306b can also be constructed so that the amount of the inorganic filler is reduced gradually or in steps from the portion P1 brought in contact with either the IC chip 1 or the board 4 toward the other portion P2.

As indicated by the solid lines in Fig. 68C and 68D, the insulating resin layers 6 and 306b can also be constructed so that the amount of the inorganic filler is

reduced gradually or in steps from portions P3 and P4 brought in contact with the IC chip 1 and the board 4, respectively, toward another portion, i.e., a middle portion P5 located between the IC chip 1 and the board 4.

5           As indicated by the solid line in Fig. 68E, the insulating resin layers 6 and 306b can also be constructed so that the amount of the inorganic filler is gradually reduced from a portion brought in contact with the IC chip 1 and the board 4 (portion corresponding to the contact  
10           portion 703 in the modification example of Fig. 63D) toward a middle portion (portion corresponding to the middle portion 702 in the modification example of Fig. 63D) located between the IC chip 1 and the board 4.

          As indicated by the solid line in Fig. 68F, the  
15           insulating resin layers 6 and 306b can also be constructed so that the amount of the inorganic filler is mixed less in the order of a portion located in the vicinity of the IC chip 1, a portion located in the vicinity of the board 4, and a middle portion located between the vicinity of the IC  
20           chip 1 and the vicinity of the board 4. Although the amount of the inorganic filler is gradually reduced in the above-mentioned order as shown by example in Fig. 68F, without being limited to this, the amount may be reduced in steps.

25           With the arrangements of the modification